REMARKS

Upon entry of this amendment, claims 1-29 are pending. Claims 30-33 are canceled. Claims 1, 13-24, and 26-29 have been amended. Applicants respectfully submit that the amendments do not introduce new matter and are made without any intention to abandon the subject matter as filed, but with the intention that claims of the same, greater, or lesser scope may be filed in a continuing application.

Rejections Under 35 U.S.C. §112, First Paragraph

The Examiner rejected claims 19-21 under 35 U.S.C. §112, first paragraph, contending that they contain subject matter that was not described in the Specification in such a way as to reasonably convey to one skilled in the art that the inventors had possession of the claimed invention at the time the application was filed. Applicants traverse the rejection to the extent it is maintained over the claims as amended.

Applicants submit that their specification provides support for a component that associates with an RNP complex if it associates with a Kd of about 10^{-6} to about 10^{-9}, about 10^{-7} to about 10^{-9}, and about 10^{-8} to about 10^{-9} in paragraph 44 of the Specification. Applicants submit that they do not require drawings of such structures for binding and that the dissociation constant Kd of such interactions is well known in the art or is easily determined by a skilled artisan. For example, Applicants submit herewith a number of references that predate the filing date of the instant application that indicate that binding assays for determining Kd of RNA binding proteins were well known in the art and that a skilled artisan would be well aware of the Kd between an RNP complex and its components.

For example:

"*FMR1* Protein: Conserved RNP Family Domains and Selective RNA Binding" Ashley et al. (1993) Science 262:563-66: Columns 2 on page 565 describes the Kd for FMR1 mRNA of between about 5.7nM and 39 nM. (Exhibit A).

"AUF1 Binding Affinity to A+U-rich Elements Correlates with Rapid mRNA Degradation" DeMaria et al. (1996) J. Biol. Chem. 271:12174-84: Columns 1 on page 12181 describes the Kd for Rß and $(AUUU)_5$ of about 210±50 nM to 19±7nM. (Exhibit B).

"The Neuronal RNA Binding Protein Nova-1 Recognizes Specific RNA Targets in Vitro and In Vivo": Buckanovich et al. (1997) Mol. Cellul. Biol. 17:3194-3201: Column 1 of page 3196 describes the Kd for NFP for SB2 to about 2 to about 20nM and the Kd of N3 for SB2 is about 10 to about 180 nM. (Exhibit C).

"The Determinants of RNA-binding Specificity of the Heterogeneous Nuclear Ribonucleoprotein C Proteins" Görlach et al. (1994) J. Biol. Chem. 269:23074-78: This article describes a number of Kd measurements, for example, on page 23076 column 2, the Kd of U2AF for different 3' splice site regions is 10^{-8} to 10^{-6}M; on page 23077 the Kd of hnRNPC1 for CB2 is 170 nM. (Exhibit D).

"Binding Protein: Localization, Abundance, and RNA-Binding Specificity" Görlach et al. (1994) Exp. Cell Res. 211:400-407: This abstract describes that hPABP binds to oligo(rA)-rich sequences with a Kd of 7nM. (Exhibit E).

"Wheat Germ Poly(A) Binding Protein Enhances the Binding Affinity of Eukaryotic Initiation Factor 4F and (iso)4F for Cap Analogues" Wei et al. (1998) Biochem. 37:1910-16: Column 1 of page 1912 showed the Kd for various cap associated proteins for PABP to be between 15nM and 40nM. (Exhibit F).

Given that the literature clearly documented the Kds of RNA binding proteins at the filing date of this application and methods of easily determining same, Applicants respectfully request that the rejection be reconsidered and withdrawn.

Rejections Under 35 U.S.C. §102

The Examiner rejected claims 1, 2, 8, 11-14, 17, 26, and 29 under 35 U.S.C. §102(b) as being anticipated by Allen et al. (1998) Mol. Cellul. Biol. 18:6014-6022 ("Allen"). Applicants traverse the rejection to the extent it is maintained over the claims as amended.

Applicants submit that Allen does not describe contacting a sample comprising a plurality of RNA-protein complex with at least one ligand and separating a plurality of RNP complexes by binding the ligand with a binding molecule specific for the ligand, wherein the binding molecule is attached to a solid support, collecting the RNP complexes by removing the RNP complexes from the solid support, and identifying the plurality of RNAs or other components associated with the RNP complexes. Allen describes immunoprecipitation of mRNPs using MAbs followed by either elution of proteins and protein analysis or by RNA analysis. Allen does not disclose collecting a plurality of RNP complexes by removing RNP complexes from a solid support. Allen also does not disclose identifying a plurality of RNAs or other components associated with the RNP complexes. Because Allen does not identically disclose Applicants' claimed invention, Applicants respectfully submit that Allen is not a proper reference under 35 U.S.C. §102(b). Applicants respectfully request reconsideration and withdrawal of the rejection.

The Examiner rejected claims 1, 2, 5-8, 12-15, 17, 25, and 26 under 35 U.S.C. §102(a) as being anticipated by Antic et al. (1999) Genes & Development 13:449-461 ("Antic"). Applicants traverse the rejection to the extent it is maintained over the claims as amended.

Applicants submit that Antic does not describe contacting a sample comprising a plurality of RNA-protein complexes with at least one ligand and separating the RNP complexes by binding the ligand with a binding molecule specific for the ligand, wherein the binding molecule is attached to a solid support, collecting the RNP complexes by removing the RNP complexes from the solid support, and identifying the plurality of RNAs or other components associated with the RNP complexes. Antic describes immunoprecipitation of mRNPs using an antibody to Hel-N1 protein followed by either protein analysis or RNA analysis. Antic does not disclose collecting a plurality of RNP complexes by removing an RNP complexes from a solid support. Antic also does not disclose identifying the plurality of RNAs or other components associated with the RNP complexes. Because Antic does not identically disclose Applicants' claimed invention, Applicants respectfully submit that Antic is not a proper reference under 35 U.S.C. §102(a). Applicants respectfully request reconsideration and withdrawal of the rejection.

The Examiner rejected claims 1, 2, 8, 12-14, 17, 26, and 27 under 35 U.S.C. §102(a) as being anticipated by Reim et al. (1999) Exp. Cell Res. 253:573-86 ("Reim"). Applicants traverse the rejection to the extent it is maintained over the claims as amended.

Applicants submit that Reim does not describe contacting sample comprising a plurality of RNA-protein complexes with at least one ligand and separating the RNP complexes by binding the ligand with a binding molecule specific for the ligand, wherein the binding molecule is attached to a solid support, collecting the RNP complexes by removing the RNP complexes from the solid support, and identifying the plurality of RNAs or other components associated with the RNP complexes. Reim describes immunoprecipitation of NonA protein followed by either elution of the immunocomplexes for protein analysis or elution of the immunocomplexes for RNA analysis. Reim does not disclose collecting a plurality of RNP complexes by removing an RNP complex from a solid support. Reim also does not disclose identifying the plurality of RNAs or other components associated with the RNP complexes. Because Reim does not identically disclose Applicants' claimed invention, Applicants respectfully submit that Reim is not a proper reference under 35 U.S.C. §102(b). Applicants respectfully request reconsideration and withdrawal of the rejection.

The Examiner rejected claims 1-9, 13-17, 23, and 25-28 under 35 U.S.C. §102(b) as being anticipated by Keene et al. (U.S. Patent No. 5,773,246) ("Keene"). Applicants traverse the rejection to the extent it is maintained over the claims as amended.

Keene does not describe contacting a sample comprising a plurality of RNA-protein complexes with at least one ligand and separating the RNP complexes by binding the ligand with a binding molecule specific for the ligand, wherein the binding molecule is attached to a solid support, collecting the RNP complexes by removing the RNP complexes from the solid support, and identifying the plurality of RNAs or other components associated with the RNP complexes. For example, column 24, lines 34-63 of Keene describes the binding of an RBP, Hel-N1 protein, to anti-g10 antibody and immunoprecipitation, followed by the addition of labeled RNA transcripts and isolation of RNAs that bind to the RBP. In that disclosure, an RBP was immunoprecipitated (column 24, line 41), not an mRNP complex. In the Hela experiments

described in column 24, lines 54-63, Applicants submit that Hela nuclear extracts were used to make labeled proteins. Column 27, line 27 through column 28, line 20, which was cited by the Examiner, describes immunoprecipitation of RNPs using an anti-Hel-N1 antibody followed by extraction of RNA. Keene does not disclose collecting a plurality of RNP complexes by removing the RNP complexes from a solid support. Keene also does not disclose identifying the plurality of RNAs or other components associated with the RNP complexes. Because the Keene patent does not identically disclose Applicants' claimed invention, Applicants respectfully submit that Keene is not a proper reference under 35 U.S.C. §102(b). Applicants therefore respectfully request that the rejection be reconsidered and withdrawn.

The Examiner rejected claims 1-6, 12-15, 17, and 26 under 35 U.S.C. §102(b) as being anticipated by Buckanovich et al. (1997) Mol. and Cellul. Biol. 17(6):3194-3201 ("Buckanovich"). Applicants traverse the rejection to the extent it is maintained over the claims as amended.

Buckanovich does not describe contacting a sample comprising a plurality of RNA-protein complexes with at least one ligand and separating the RNP complexes by binding the ligand with a binding molecule specific for the ligand, wherein the binding molecule is attached to a solid support, collecting the RNP complexes by removing the RNP complexes from the solid support, and identifying the plurality of RNAs or other components associated with the RNP complexes. Buckanovich discloses immunoprecipitation of mRNPs from mouse brains followed by mRNA preparation and characterization by RT-PCR. Buckanovich does not disclose collecting a plurality of RNP complexes by removing the RNP complexes from a solid support. Buckanovich also does not disclose identifying the plurality of RNAs or other components associated with the RNP complexes. Because Buckanovich does not identically disclose Applicants' claimed invention, Applicants respectfully submit that Buckanovich is not a proper reference under 35 U.S.C. §102(b). Applicants therefore respectfully request that the rejection be reconsidered and withdrawn.

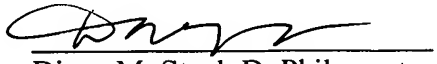
The Examiner rejected claims 1, 2, 8, 10, 18, and 26 under 35 U.S.C. §102(a) as being anticipated by Takeda et al. (1999) J. Immunol. 163:6269-6274 ("Takeda"). Applicants traverse the rejection to the extent it is maintained over the claims as amended.

Takeda does not describe contacting a sample comprising a plurality of RNA-protein complex with at least one ligand and separating the RNP complexes by binding the ligand with a binding molecule specific for the ligand, wherein the binding molecule is attached to a solid support, collecting the RNP complexes by removing the RNP complexes from the solid support, and identifying the plurality of RNAs or other components associated with the RNP complexes. Takeda discloses immunoprecipitation and analysis of proteins or RNAs from Hela cell extracts. Takeda does not disclose collecting a plurality of RNP complexes by removing the RNP complexes from a solid support. Takeda also does not disclose identifying the plurality of RNAs or other components associated with the RNP complexes. Because Takeda does not identically disclose Applicants' claimed invention, Applicants respectfully submit that Takeda is not a proper reference under 35 U.S.C. sec. 102(a). Applicants therefore respectfully request that the rejection be reconsidered and withdrawn.

CONCLUSION

Applicants respectfully urge that all claims are in condition for allowance and request prompt and favorable action on the instant application. If the Examiner believes that a telephonic interview with the undersigned would expedite prosecution of this application, the Examiner is cordially invited to call the undersigned at (617) 338-2952.

Respectfully submitted,



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